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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/562,542	12/28/2005	Guofu Zhou	NL030783	6072
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EXAMINER				
PIZIALI, JEFFREY J				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/562,542

Applicant(s)

ZHOU ET AL.

Examiner

Jeff Piziali

Art Unit

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☒ Claim(s) 5-7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 December 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-85/86)
Paper No(s)/Mail Date 12/28/05 & 11/21/06
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Inventor's Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement filed 28 December 2005 fails to fully comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed (e.g., *WO03044765A2*). It has been placed in the application file, but the information referred to therein has not been fully considered.

3. The listing of references in the specification is not a proper information disclosure statement (e.g., see Pages 2-3 of the Specification). 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Drawings

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: "*t0*," "*Vn-I driving*," "*Vn driving*," and "*V_dc-balancing*" (see Figs. 4, 5a, 5b, 5c, and 6). Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

5. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: "*area A_{n+2}*" (see Page 8, Line 10 of the Specification). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not

accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

6. The drawings have not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the figures.

Specification

7. The disclosure is objected to because of the following informalities:

The phrase, "*have visual effect*" should be changed, for example to, "*have a visual effect*" (see Page 7, Line 32 of the Specification).

Appropriate correction is required.

8. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

9. Claims 5-7 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims 5-7 have not been further treated on the merits.

Claim Rejections - 35 USC § 112

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

12. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01.

An omitted structural cooperative relationship results from the claimed subject matter: "*a plurality of picture elements*" (in line 3) and "*a respective picture element*" (in line 21). It would be unclear to one having ordinary skill in the art whether the "*respective picture element*" is an element common to the earlier claimed "*plurality of picture elements*"; or rather whether the "*respective picture element*" is distinct and independent from the earlier claimed "*plurality of picture elements*".

An omitted structural cooperative relationship results from the claimed subject matter: "*drive means*" (in line 6). The lack of a grammatical article (such as "*a*" or "*a plurality of*" or "*the*" or "*said*") preceding the limitation renders it unclear whether the claim is establishing a new element; or instead referring back to some preestablished limitation. For example, it would be unclear to an artisan whether a single "*drive means*" element is being claimed; or rather whether a plurality of "*drive means*" elements are being claimed. Additionally, because "*drive*

means" does not perform a step of "*driving*"; it would be unclear to an artisan whether the "*drive means*" in any way drives anything.

An omitted structural cooperative relationship results from the claimed subject matter: "*supply a sequence of picture potential differences to each of said picture elements*" (in line 7); "*supply one or more inter-picture potential differences*" (in line 12); and "*all potential differences applied to each picture element*" (in line 18). It would be unclear to one having ordinary skill in the art whether "*all potential differences applied to each picture element*" include one, both, or none of the "*picture potential differences*" and the "*inter-picture potential differences*".

An omitted structural cooperative relationship results from the claimed subject matter: "*the product of which*" (in line 9) and "*the product of which*" (in line 15). In each instance, it would be unclear to one having ordinary skill in the art what the subject of the limitation is meant to be. Additionally, it would be unclear to an artisan whether there is a single identical "*product*" being claimed; or rather whether there are plural, distinct and independent "*products*" being claimed.

An omitted structural cooperative relationship results from the claimed subject matter: "*the positions*" (in line 10) and "*the positions*" (in line 16). In each instance, it would be unclear to one having ordinary skill in the art what the subject of the limitation is meant to be. Additionally, it would be unclear to an artisan whether there is a single identical set of "*positions*" being claimed; or rather whether there are plural, distinct and independent sets of "*positions*" being claimed.

An omitted structural cooperative relationship results from the claimed subject matter: *"supply one or more inter-picture potential differences"* (in line 12). It would be unclear to one having ordinary skill in the art what the *"inter-picture potential differences"* are supposed to be *"supplied"* to/with.

An omitted structural cooperative relationship results from the claimed subject matter: *"memory means"* (in line 17). The lack of a grammatical article (such as *"a"* or *"a plurality of"* or *"the"* or *"said"*) preceding the limitation renders it unclear whether the claim is establishing a new element; or instead referring back to some preestablished limitation. For example, it would be unclear to an artisan whether a single *"memory means"* element is being claimed; or rather whether a plurality of *"memory means"* elements are being claimed. Additionally, because *"memory means"* does not perform a step of *"memorizing"*; it would be unclear to an artisan whether the *"memory means"* in any way memorizes anything.

An omitted structural cooperative relationship results from the claimed subject matter: *"data"* (in line 17). The lack of a grammatical article (such as *"a"* or *"a plurality of"* or *"the"* or *"said"*) preceding the limitation renders it unclear whether the claim is establishing a new element; or instead referring back to some preestablished limitation. For example, it would be unclear to an artisan whether a single element of *"data"* is being claimed; or rather whether a plurality of *"data"* elements are being claimed.

An omitted structural cooperative relationship results from the claimed subject matter: *"a picture energy"* (in lines 9-10); *"an inter-picture energy"* (in line 15); *"the picture energy"* (in line 18); and *"inter-picture energy"* (in line 18). It would be unclear to one having ordinary skill in the art whether *"the picture energy"* includes only *"a picture energy"*; or rather whether *"the*

picture energy" includes both "*a picture energy*" and "*an inter-picture energy*". Additionally, it would be unclear to an artisan whether the second instance of "*inter-picture energy*" (which lacks a grammatical article) is a duplicate of earlier claimed "*an inter-picture energy*"; or rather whether the second instance of "*inter-picture energy*" is distinct and independent from the earlier claimed "*an inter-picture energy*".

An omitted structural cooperative relationship results from the claimed subject matter: "*a running total thereof*" (in line 19). It would be unclear to one having ordinary skill in the art what the subject of this limitation is meant to be. A "*running total*" of what?

13. Claim 1 recites the limitations: "*the product*" (in line 9); "*the positions*" (in line 10); "*the product*" (in line 15); "*the positions*" (in line 16); "*all potential differences applied to each picture element*" (in line 18); "*the polarity*" (in line 20); "*the magnitude*" (in line 21). There is insufficient antecedent basis for these limitations in the claim.

14. The term "*substantially change*" (in claim 1, line 16) is a relative term which renders the claim indefinite. The term "*substantially*" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

15. Claim 1 recites the limitation "*the magnitude of said running total for a respective picture element (2) is reduced*" in lines 21-22. There is insufficient antecedent basis for this

limitation in the claim. It would be unclear to one having ordinary skill in the art what basis point or foundation "*the magnitude*" is being "*reduced*" from.

16. Claims 2-7 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01.

An omitted structural cooperative relationship results from the claimed subject matter: "*Apparatus*" (in line 1). It would be unclear to one having ordinary skill in the art whether each dependent claim's recitation of "*Apparatus*" is identical to "*a display apparatus*" of independent claim 1; or rather whether each dependent claim's recitation of "*Apparatus*" is somehow separate and distinct from the "*display apparatus*" of independent claim 1. The lack of a grammatical article (such as "*a*" or "*a plurality of*" or "*the*" or "*said*") preceding the limitation renders it unclear whether the claim is establishing a new element; or instead referring back to some preestablished limitation.

17. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01.

An omitted structural cooperative relationship results from the claimed subject matter: "*a picture element*" (in claim 2, line 2); "*a plurality of picture elements*" (in claim 1, line 3); and "*a respective picture element*" (in claim 1, line 21). It would be unclear to one having ordinary skill in the art whether the "*picture element*" is an element common to the earlier claimed "*plurality*

of picture elements" and/or *"respective picture element"*; or rather whether the *"picture element"* is distinct and independent from the earlier claimed *"plurality of picture elements"* and/or *"respective picture element"*.

18. The term *"of the order of 0.5"* in (claim 3, lines 1-2) is a relative term which renders the claim indefinite. The term *"of the order of 0.5"* is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. At the very least one having ordinary skill would consider a time interval lacking any units of measure to be unclear. Is that 0.5 minutes? Half an hour? A biweek?

19. Claim 4 recites the limitation *"the pulse time-period"* in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

20. The term *"substantially the maximum voltage"* (in claim 5, line 2) is a relative term which renders the claim indefinite. The term *"substantially"* is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Is this *"substantially"* meant to insinuate the same indefinite approximate range as the *"substantially"* in claim 1?

Art Unit: 2629

21. Claim 5 recites the limitation "***the maximum voltage***" in line 2. There is insufficient antecedent basis for this limitation in the claim.

22. Claim 6 recites the limitations: "***the threshold voltage***" (in lines 2-3) and "***the ink materials***" (in line 3). There is insufficient antecedent basis for these limitations in the claim.

23. Claim 7 recites the limitation "***the number***" in lines 2-3. There is insufficient antecedent basis for this limitation in the claim.

Conclusion

24. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The documents listed on the attached '*Notice of References Cited*' are cited to further evidence the state of the art pertaining to display apparatuses.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Piziali whose telephone number is (571) 272-7678. The examiner can normally be reached on Monday - Friday (6:30AM - 3PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (571) 272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jeff Piziali/
Primary Examiner, Art Unit 2629
11 April 2008